CLAIMS

What is claimed is:

1. An image compression apparatus, comprising:

an image transformer, for transforming each pixel of an image data into binary bit array; bits of a same bit plane are located in a same column;

a context modeler, coupled to said image transformer, includes a context model template and a context model; and

a mathematic encoder, coupled to said context modeler, for encoding a bit to be compressed according to said context modeler and information provided by a plurality of reference context bits correspondent to said context model;

wherein said plurality of reference context bits for said bit to be compressed are identified from said context model template according to numbers of bit planes of said bit array and shape of said context model; said bit to be compressed and said plurality of reference context bits are on a same bit plane.

2. The image compression apparatus according to claim 1 wherein said context model comprises column spacing.

3. The image compression apparatus according to claim 2 wherein number of said column spacing is determined by reduction one from number of bits represented for each image pixel.

4. The image compression apparatus according to claim 1 wherein number of said plurality of reference context bits correspondent to said context model is ten.

5. The image compression apparatus according to claim 1 wherein said plurality of reference context bits comprise at least position information of said bit to be compressed.

6.   The image compression apparatus according to claim 1 wherein said plurality of reference context bits comprise at least color information of said bit to be compressed.

7.   The image compression apparatus according to claim 1 wherein said plurality of reference context bits comprise at least position information of bits adjacent to said bit to be compressed.

8.   The image compression apparatus according to claim 1 wherein said plurality of reference context bits comprise at least color information of bits adjacent to said bit to be compressed.

9.   An image compression method applicable to a compression apparatus composed of an image transformer, a context modeler composed of a context model template and a context model, and an encoder, for compressing a plurality of pixels of an image, in which each pixel is represented by at least a bit with a color value and location in said image; every said bits are located on different bit planes; said method comprises steps of:

transforming all pixels of said image into a bit array comprising different bit planes each having a plurality of bits located in a same column;

determining a number of column spacing of context model according to said number of bits of each pixel;

determining a shape of context model correspondent to said context model template; covering a range of reference context bits in said bit array for a bit to be compressed;

in the range, obtaining a plurality of reference context bits in a same bit plane of said bit to be compressed by using said context model; and

encoding said bit to be compressed by using data of said reference context bits.

10. The image compression method according to claim 9 wherein said number of column spacing is determined by reduction one from number of bits represented for each image pixel.

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11. The image compression method according to claim 9 wherein said plurality of reference context bits comprise at least position information of said bit to be compressed.

12. The image compression method according to claim 9 wherein said plurality of reference context bits comprise at least color information of said bit to be compressed.

5   13. The image compression method according to claim 9 wherein said plurality of reference context bits comprise at least position information of bits adjacent to said bit to be compressed.

14. The image compression method according to claim 9 wherein said plurality of reference context bits comprise at least color information of bits adjacent to said bit to be
10   compressed.